

MS ELECTRICAL ENGINEERING CURRICULUM



**DEPARTMENT OF ELECTRICAL ENGINEERING
PAKISTAN INSTITUTE OF ENGINEERING & APPLIED SCIENCES
NILORE, ISLAMABAD**

LIST OF COURSES

NE-501 FUNDAMENTALS OF NUCLEAR ENGINEERING	6
NE-502 RADIATION INTERACTION AND DETECTION.....	6
EE-503 POWER SYSTEM ANALYSIS AND DESIGN	7
NE-510 NUCLEAR POWER PLANT SYSTEMS	7
EE-520 SPECIAL TOPICS IN ELECTRICAL ENGINEERING-I.....	8
EE-521 ADVANCED POWER SYSTEM PROTECTION	8
EE-523 INDUSTRIAL CONTROL AND AUTOMATION WITH PLCS.....	9
EE-529 POWER CONVERTER DESIGN.....	9
EE-535 HIGH VOLTAGE ENGINEERING APPLICATIONS	10
EE-553 OPTIMIZATION OF POWER SYSTEM OPERATION	10
EE-555 TRANSMISSION AND DISTRIBUTION SYSTEMS ENGINEERING	11
EE-604 DISTRIBUTED GENERATION AND SMART GRIDS.....	11
EE-608 POWER SYSTEM OPERATION AND ECONOMICS.....	12
EE-609 ASSET MANAGEMENT AND RISK ASSESSMENT OF POWER SYSTEMS.....	13
EE-610 POWER SYSTEM STABILITY AND CONTROL	13
EE-612 FAULT DIAGNOSIS AND TOLERANCE	14
EE-616 INDUSTRIAL DRIVES.....	14
EE-622 SPECIAL TOPICS IN ELECTRICAL ENGINEERING-II.....	15
EE-624 POWER SYSTEM TRANSIENTS	15
NE-625 REACTOR CONTROL AND INSTRUMENTATION	15
EE-697 M.Sc. THESIS RESEARCH	16

SEMESTER-WISE COURSE PLAN

	Sr. No.	Code	Course Title	Credit Hours	Status	Credit Hours
Spring Semester (Year 1)	1	NE-501	Fundamentals of Nuclear Engineering	3	IR	15
	2	CMS-501	Communication Skills	0+1	IR	
	3	NE-502	Radiation Interaction and Detection	4	IR	
	4	EE-503	Power System Analysis and Design	4	C	
	5	EE-529	Power Converter Design	3	C	
Summer Session (Year 1)	1	NE-510	Nuclear Power Plant Systems	3	IR	6
	2	EE-521	Advanced Power System Protection	3	C	
Fall Semester (Year 1)	1	EE-540	Power Systems Lab-I	3	C	15
	2	EE-610	Power System Stability and Control	3	C	
	3	NE-625	Reactor Control and Instrumentation	3	C	
	4	EE-XXX	Optional 1	3	O	
	5	EE-XXX	Optional 2	3	O	
Spring Semester (Year 2)	1	EE-541	Power Systems Lab-II	3	O/ IR	15
	2	EE-604	Distributed Generation and Smart Grids	3	C	
	3	EE-XXX	Optional 3	3	O	
	4	EE-XXX	Optional 4	3	O	
	5	EE-697	Thesis Research	3	C	
Research Semester	1	EE-697	Thesis Research	9	C	9
Total Credit Hours						60

(IR)* : Institutional Requirement

LIST OF OPTIONAL COURSES

OPTION 1 AND OPTION 2

Sr.No.	Code	Course Title	Credit Hours	Prerequisite
1	EE-523	Industrial Control and Automation with PLCs	3	NIL
2	EE-511	Digital Control Systems Analysis & Design	3+1	NIL
3	EE-535	High Voltage Engineering Applications	3	NIL
4	EE-553	Optimization of Power System Operation	3	EE-503
5	EE-555	Transmission and Distribution Systems Engineering	3	EE-503
6	EE-616	Industrial Drives	3	EE-529
7	EE-520	Special Topics in Electrical Engineering-I	3	Option Dependent

OPTION 3 AND OPTION 4

Sr.No.	Code	Course Title	Credit Hours	Prerequisite
1	EE-611	Robust Control in Power Systems	3	EE-511
2	EE-608	Power System Operation And Economics	3	EE-503
3	EE-609	Asset Management and Risk Assessment of Power Systems	3	EE-503
4	EE-612	Fault Diagnosis and Tolerance	3	EE-511
6	EE-624	Power System Transients	3	EE-503
7	EE-622	Special Topics in Electrical Engineering-II	3	Option Dependent

Eligibility: Bachelor's in Electrical Engineering with major in Power.